REMARKS

Applicants have carefully considered the June 24, 2008 Office Action, and the amendments above together with comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-24 were pending in this application. Claims 5-20 were withdrawn from consideration pursuant to the previous restriction requirement.

In response to the June 24, 2008 Office Action, claims 1-24 have been cancelled and replaced with claims 25-32. Support for the amendment is found in the originally filed claims and disclosure, including numbered paragraphs [0056] and [0080] of the present application as published.

**Claims 1-4 and 21-24 were rejected under 35 U.S.C. § 102(a) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over WO 2004/108322 ("Okuda"). The Examiner relied on Okuda et al. (U.S. Pat. App. Pub. No. 2006/0141159, App. No. 10/559,580) as an English equivalent to the WIPO publication. Applicants traverse.**

Claims 1-4 and 21-24 have been cancelled and replaced with claims 25-32. Accordingly, the rejection of claims 1-4 and 21-24 is moot. Moreover, new claims 25-32 are patentably distinct over the prior art or record for the following reasons. It is noted that claim 25 corresponds to cancelled claim 1, and further includes the limitation concerning the compression ratio.

In maintaining the rejection predicated upon Okuda, the Examiner referenced paragraph 254 of Okuda for disclosing that the sintered porous PTFE is further compressed to form a laminate with the three layers of the expanded PTFE layers fusion-bonded to each other. The Examiner further asserted that compressing is a step subsequent to sintering.

In paragraph 254, Okuda describes the following:

> Three expanded PTFE sheets each having an area of 1 0 $cm^2$, a porosity of 60%, an average pore diameter of 0. 1 μm (bubble point with isopropyl alcohol: 150 kPa) and a thickness of 30μm were superimposed on one another and held between 2 stainless steel plates each having dimensions of 3 mm in thickness, 150 mm in length and 100 mm in width. A load of the stainless steel plates was applied to the sheets, and a heat treatment was conducted at 350°C. for 30 minutes. After the heating, the sheets were quenched with water from above the stainless steel plates to obtain a laminate with the 3 layers of the expanded PTFE sheets fusion-bonded to one another.

With respect to this step, Okuda, at paragraphs 0197-0198, describes as follows:

> FIG. 4 is a flow diagram illustrating the respective steps adopted in the production process of the present invention. As illustrated in FIGS. 4(A) and 4(B), porous resin layers 42 and 43 are laminated as mask layers on both surfaces of a porous resin base 41 to form a laminate 44 of a 3-layer structure. The porous resin layers, which will become mask layers, may be the same or different from the porous resin base. The same 3 porous resin bases are generally used to form the laminate. In order to effectively mask both surfaces of the porous resin base 41, it is preferable to fusion bond the respective layers to each other to integrate them. When expanded PTFE sheets are used as the porous resin base and mask layer, the respective layers are easily fusion bonded to each other and integrated by heating and pressure welding them, and the mask layers can be easily separated if necessary.

As described above, the description of paragraph 254 in Okuda is describing that disclosed in paragraphs 0197-0198. The description of "[w]hen expanded PTFE sheets are used as the porous resin base and mask layer, the respective layers are easily fusion bonded to each other and integrated by heating and pressure welding them, and the mask layers can be easily separated if necessary[.]" in paragraph 0198, is specifically described as "[a] load of the stainless steel plates was applied to the sheets, and a heat treatment was conducted at 350° C. for 30 minutes[.]" in paragraph 254.

The Examiner further contends that "compressing is a step subsequent to sintering" in Okuda/ However, the steps disclosed in Okuda are heating and pressure welding, not cooling and compressing, as with the present subject matter.

On the other hand, the methodology disclosed in the present application recites that "(5) a cooling step 5 of cooling the sintered expanded porous polytetrafluoroethylene film (A); and (6)

a compression step 6 of compressing the cooled expanded porous polytetrafluoroethylene film (A) in a thickness-wise direction of the film".

Specifically, the specification of the present application describes the fact that "[a]fter the film was air-cooled, this expanded sheet was compressed (compression ratio: 2.0) by means of a rolling mill so as to give a film thickness of about 0.04 mm." See paragraph 0098 of the published application.

As described above, Okuda describes is heating and pressure welding, while the present application utilizes cooling and compressing. It should be readily apparent that the products of the present application as compared to the Okuda publication, are materially different from each other when the different production processes are compared to one another.

In view of the foregoing, the Examiner's assertion (page 3 of the Office Action) that Okuda "uses the same material and the same processing steps such as extruding, rolling, stretching, sintering and compressing as Applicants for forming the expanded porous PTFE of the present invention[.]" is not factually viable and Okuda's disclosure undermines the Examiner's apparent reliance on the doctrine of inherency.

Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 212 USPQ 323, (CCPA 1981). To establish inherency, the extrinsic evidence must make clear that the missing element must necessarily be present in the reference. In view of the foregoing differences noted above, it is respectfully submitted that Okuda fails to disclose or remotely suggest the residual strain and modulus of longitudinal elasticity, as recited in independent claim 1. Again, it should be readily apparent that the products are different from each other when a comparison of the production processes reveals the distinctions.

The Examiner's attention is again directed to the non-elected claims 5 and 13 and supporting disclosure regarding the processing specifics. In particular, it is apparent that since the expanded porous PTFE film of the present application is subjected to compressing, the compression greatly affects the properties of the film. Accordingly, the statement that "[i]t is not seen that the residual strain and elastic modulus could have been outside the claimed ranges as like material has like property[.]" as indicated by the Examiner is not sustainable.

Moreover, the object that Okuda intends to be solved is "to provide a production process of a perforated porous resin base, by which perforations (through-holes) having smooth edges can be formed at necessary positions of a porous resin base with high precision without incurring collapse of the porous structure, deformation of the base and occurrence of burr." See paragraph 0035. In other words, "without incurring collapse of the porous structure" is important an important feature of Okuda. The microstructure is not changed as described at paragraph 0216 of Okuda: "The peripheries of the perforations were the same porous as in other portions than the perforated portions, and no change in the microstructure was observed."

Even in Example 11 of paragraph 254, referenced by the Examiner, it is presumed that the microstructure is not changed after the step of heating and pressure welding in view of the object to be solved by Okuda.

On the other hand, in the present subject matter, the thickness of the film is reduced to a half, 0.04 mm, from 0.08 mm by cooling and compressing as follows: "The porosity of the expanded sheet as measured at this point of time was about 72%, and the thickness of the film was 0.08 mm. After the film was air-cooled, this expanded sheet was compressed (compression ratio: 2.0) by means of a rolling mill so as to give a film thickness of about 0.04 mm. The porosity of the thus-obtained expanded porous PTFE film was about 50%." See paragraph 0098. It is therefore apparent that the microstructure is changed by cooling and compressing.

Accordingly, it should be evident that the Examiner's speculative conclusion about the residual strain and elastic modulus, is clearly not supported by the disclosure of the reference itself.

Applicants further submit that the steps subsequent to sintering disclosed in Okuda are heating and pressure welding, and not compressing and cooling as with the present subject matter. Claim 25 of the present application requires that "the expanded porous polytetrafluoroethylene film is compressed at a compression ratio of 1.2 to 3.0 in the thickness-wise direction of the film" thereby clarifying that the film is compressed, which is clearly not the case with Okuda.

For the foregoing reasons, it is believed that claims 25-32 are patentably distinct over the art of record.

**Claims 1-4 and 21-24 were rejected under 35 U.S.C. § 102(a) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over JP 2004/265844 ("Masuda"). The Examiner relied on Masuda et al. (U.S. Pat. App. Pub. No. 2006/0251871, App. No. 10/551,459) as an English equivalent to the JPO publication. Applicants traverse.**

Claims 1-4 and 21-24 have been cancelled and replaced with claims 25-32. Accordingly, the rejection of claims 1-4 and 21-24 is moot. Moreover, new claims 25-32 are patentably distinct over the prior art or record for the following reasons. It is noted that claim 25 corresponds to cancelled claim 1, and further includes the limitation concerning the compression ratio.

Masuda, at numbered paragraph [0064] describes:

> An example in which a porous PTFE film (A) obtained by the expansion method is used as a base film and polytetrafluoroethylene films of the same material, preferably porous PTFE films (B) and (C), are used as mask layers will be described in reference to FIG. 4. A three layer laminated body is formed by fusion-bonding porous PTFE films (B) 44 and (C) 45 as the mask layer to both faces of the base film consisting of a porous PTFE film (A) 43 as shown in FIG. 4. More concretely, these porous PTFE films are stacked in three layers as shown in FIG. 4, and both faces of the stacked layers are sandwiched between two sheets of stainless boards 41 and 42. Each stainless board has parallel surfaces. By heating each stainless board for 30 minutes or more at a temperature of 320-

> 380°C, three layers of porous PTFE films are melt and bonded with one another. Preferably, quenching is performed using cooling, water or the like to enhance the mechanical strength of the porous PTFE films after the heat treatment. Thus, a three layer laminated body is formed.

The Examiner asserted that "[i]t appears that Masuda uses the same material and the same processing steps such as extruding, rolling, stretching, sintering and compressing as Applicants for forming the expanded porous PTFE of the present invention", however as with the Okuda reference above, these sections of Masuda fail to disclose or suggest "compressing" as a step subsequent to "sintering".

Masuda disclosed that "[b]y heating each stainless board for 30 minutes or more at a temperature of 320-380°C, three layers of porous PTFE films are melt and bonded with one another." Accordingly, Masuda does not teach the step of cooling and compressing as in the present application.

Masuda disclose that "[t]hus, as a result of continued research, it was found that the porous structure in conductive parts could be maintained in the case where the conductive parts were formed by making conductive metal to adhere to the resinous parts of porous structure at plural positions of the porous film in a manner such as piercing through in the thickness direction. Although the original porous structure of the porous film cannot be maintained completely in the conductive parts because of the conductive metal adhering to the resinous parts of porous structure, it is possible to maintain the porous structure to some degree. That is, in an anisotropic conductive film of the present invention, the conductive parts are of porous structure." See paragraph 0010.

It is apparent that the porous structure of the porous film disclosed in Masuda is scarcely changed in view of the above explicit description of "original porous structure of the porous film".

Above all, Masuda discloses that "[b]y heating each stainless board for 30 minutes or more at a temperature of 320-380°C, three layers of porous PTFE films are melt and bonded with one another.", It is thus apparent that the disclosure of Masuda does not disclose or remotely suggest that "compressing is a step subsequent to sintering", as asserted by the Examiner.

The reason why the three layer laminated body is formed in paragraph 0064 of Masuda is that the base film is masked as described below at paragraph 0062:

> In the present invention, therefore, using a mask layer, for example, is recommendable as a method of adhering conductive metal only to the walls of the through holes. More specifically, in order to cause conductive metal to adhere only to the walls of the through holes, mask layers are formed on both surfaces of a base film so that no catalytic particles for facilitating chemical reduction reaction in electroless plating may adhere to the surfaces of the base film.

Accordingly, the mask layer is separated from the base film after the role as the mask layer is ended as described below at paragraph 0063:

> For example, when a porous PTFE film made by the expansion method is used as the base film, preferably a polytetrafluoroethylene film, which is the same material as the base film, is used as the mask layer material because not only is the stickability thereof with the base film good, allowing simultaneous formation of through holes with the base film, but also delamination thereof with the base film can be easily done upon ending of its role as the mask layer.

Masuda does not teach the fact that the porous structure of the base film is changed in view of these descriptions. In other words, Masuda teaches that the porous structure of the base film is retained as is. Accordingly, Masuda does not disclose or remotely suggest "compressing is a step subsequent to sintering" as asserted by the Examiner. Claim 25 describes that the expanded porous polytetrafluoroethylene film is compressed at a compression ratio of 1.2 to 3.0 in the thickness-wise direction of the film" thereby clarifying that the film is compressed, unlike that of Masuda.

Moreover, Masuda at paragraph 0051 discloses the following:

> The porous PTFE film used in the present invention can be manufactured by the process described in Japanese Patent Application Publication No. S42-13560B, for example. First, liquid lubricant is mixed with unsintered PTFE powder and the resulting mixture is pressed into a tubular or planar shape by ram extruding. If a sheet having a thin thickness is to be obtained, the rolling of a planar body is performed by a reduction roll. After the extruding or rolling process, the liquid lubricant is removed from the extruded or rolled product if necessary. The extruded or rolled product thus obtained is expanded at least in one axial direction, so that an unsintered porous polytetrafluoroethylene film can be obtained. If the unsintered porous PTFE film is heated to a temperature equal to or more than 327°C, which is the melting point of polytetrafluoroethylene, and is sintered and solidified in such expanded state while it is fixed so as to prevent the contraction thereof, an extremely high-strength porous PTFE film is obtained. When the porous PTFE film is tubular, the tubular film can be made a flat film by cutting it open.

The Examiner asserted that "[i]t appears that Masuda uses the same material and the same processing steps such as extruding, rolling, stretching, sintering and compressing as Applicants for forming the expanded porous PTFE of the present invention", however as with the Okuda reference above, these sections of Masuda fail to disclose or suggest "compressing" as a step subsequent to " sintering". Even the process disclosed in Japanese Patent Publication No S42-13560B cited in Masuda only discloses "A process for producing a porous structure, comprising forming an unsintered tetrafluoroethylene resin mixture containing a liquid lubricant as described in detail in the specification by extrusion or rolling or a process including both and then heating the formed product to at least about 327C in a state stretched in at least one direction in an unsintered state." See Claim 1. Thus, "compressing" that is a step subsequent to " sintering" is not disclosed in Masuda.

For the foregoing reasons, it is believed that claims 25-32 are patentably distinct over the art of record.

**Claims 1-4 and 21-24 were provisionally rejected on the ground of nonstatutory obviousness-double patenting as being unpatentable over claims 1, 5 and 6 of copending application No. 10/551,459 (U.S. Pat. App. Pub. No. 2006/0251871 to Masuda et al.). Applicants traverse.**

In response, Applicants note that a double patenting rejection of the obviousness-type is nearly analogous to the nonobviousness requirement of 35 U.S.C. § 103. See *In re Braithwaite*, 379 F.2d 594, 154 U.S.P.Q. 29 (CCPA 1967). Moreover, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. § 103 obviousness determination. See *In re Braat*, 937 F.2d 589, 19 U.S.P.Q.2d 1289 (Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 225 U.S.P.Q. 645 (Fed. Cir. 1985). The factual inquiries outlined in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103, should be employed when making an obvious-type double patenting analysis. Therefore, Applicants respectfully traverse the obvious-type double patenting rejection for substantially the same reasons set forth above in response to the 35 U.S.C. § 103(a) rejection predicated upon Masuda. As described in the above, Masuda does not disclose or suggest a step of cooling and compressing, and teaches that the porous structure of the base film is retained as is, without conducting compressing. Reconsideration and withdrawal of the rejection are solicited.

**Claims 1-4 and 21-24 were provisionally rejected on the ground of nonstatutory obviousness-double patenting as being unpatentable over claims 1, 5 and 6 of copending application No. 10/586,341 (U.S. Pat. App. Pub. No. 2007/0160810 to Hayashi et al.). Applicants traverse.**

The Examiner asserted that "[i]t appears that the '341 application uses the same material and the same processing steps such as extruding, rolling, stretching, sintering and compressing as the present invention for forming the expanded porous PTFE of the present invention. The sintered porous PTFE is further compressed to form a laminate with the 20 layers of the expanded PTFE layers fusion-bonded to each other (Example 5).".

Hayashi describes in Example 5 as follows:

> Twenty porous drawn PTFE films (trade name "HP010-60", manufactured by SUMITOMO ELECTRIC FINE POLYMER, INC.) with a pore size of 0.1 μm, a porosity of about 50%, and a film thickness of 60 μm were stacked one on another. The films were sandwiched between two stainless steel sheets of 200 mm square, and a thickness of 4 mm, and heated to 340°C. or more, and fused. Thus, a porous drawn PTFE sheet in a 20-layered structure with a film thickness of about 1200 μm was fabricated.

However, this process is the same as in Okuda and Masuda discussed above. Hayashi does not teach the step of cooling and compressing because the films were heated to 340° C.

In addition, Hayashi clearly describes that "[w]ith this method, it is possible to carry out fine processing such as the formation of deep through holes and deep trenches without breaking the porous structure of the porous molded product." (paragraph 0016 - emphasis added).

Accordingly, it should be readily apparent that compressing is not conducted in Hayashi. Claim 25 of the present application describes that the expanded porous polytetrafluoroethylene film is compressed at a compression ratio of 1.2 to 3.0 in the thickness-wise direction of the film" thereby clarifying that the film is compressed, unlike that of Hayashi.

Therefore, Applicants respectfully traverse the obvious-type double patenting rejection predicated upon Hayashi is not legally viable. Reconsideration and withdrawal of the rejection are solicited.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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